936-104 Prophylaxis of Atrial Fibrillation Following Electrical Cardioversion. A Prospective Randomized Study Comparing Low-Dose and Very Low-Dose Amiodarone to Propafenone: Preliminary Results

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In patients (pts) with chronic atrial fibrillation (AF), restoration of sinus rhythm (SR) can be easily achieved by pharmacological or electrical cardioversion (EC) but relapse rates are high, even with the use of antiarrhythmic drugs (AA). In June 1995 we planned a single-center, prospective, open-label, randomized study comparing the safety and efficacy of amiodarone (A) vs propafenone (P) in maintaining SR in 150 pts with chronic AF successfully submitted to EC. Pts were randomized to receive low-dose A (200 mg/day, group A), very low-dose A (100 mg/day, group B) or P (675 mg t.i.d., group C). Pts assigned to A received a loading dose of 1500 mg in the 24 hours following EC. Pts with post-surgery AF (PSAF) or AF during an acute myocardial infarction (AMIAF) and pts with contraindication to AA [sinus node disfunction (SND) and A-V conduction defects (AVCD)] were not included in the study. Pts with thyroid disease (TD) and short-term planned cardiac surgery (STCS) were also excluded. Age > 75 years, LVEF < 40% and left atrial enlargement were not criteria of exclusion. All pts were then examined and a 12-lead ECG obtained at 1, 3, 6, 12 months of follow-up or when they experienced symptoms suggestive for AF recurrence. From June 1995 to June 1996, 86 pts (54%), out from 159 pts successfully submitted to EC, were enrolled. Reasons for exclusion (73 pts) were: PSAF in 20 (27%), AMIAF in 12 (16%), TD in 11 (15%), STCS in 9 (12%), SND or AVCD in 12 (16%), refused informed consent in 9 pts (12%). Thirty one pts were randomized to group A, 25 to group B and 30 to group C. Age, sex, underlying heart disease, AF duration, body weight, left atrial diameter and LVEF were not significantly different between groups. At a mean follow-up of 7.3 ± 3.6 months (range 1–14 months) 25 pts (81%) of group A were still in SR compared to 19 pts (76%) of group B (p = ns) and 17 pts (57%) of group C (p < 0.05 vs group A and p = ns vs group B). No serious side effect was reported, but 2 pts reduced P for intestinal discomfort and 1 pt died for non-cardiac causes.

Conclusions: Our preliminary data indicate that low-dose A is a safe and effective treatment, superior to P, for maintaining SR after EC for chronic AF. A similar trend of efficacy can be showed for very low-dose of A.

936-105 Pain Threshold for Internal Cardioversion With Low or no Sedation

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Background: Recent studies have shown that internal cardioversion (IC) of atrial fibrillation (AF) is effective. In this prospective study, we have tried to evaluate the influence of different waveforms on the perception of pain during IC in patients (pts) with chronic AF.

Methods: IC was performed with low or no sedation in 19 pts. R-wave triggered, biphasic waveforms of 6 ms/6 ms or 3 ms/3 ms pulse length (randomly selected) and approximately 65% tilt were used starting with a 60 volt (V) test shock, then increased in 40 V steps up to a maximum voltage of 520 V. Shocks were applied via 2 custom-made electrode catheters (Elecath, Rahway, NJ). In 11 pts (3 female, age 61 ± 11 years, LA-diameter 58 ± 5 mm, duration of AF 4 ± 4 months), 6/6 waveforms were used, and in 8 pts (2 female, age 62 ± 5 years, LA-diameter 59 ± 5 mm, AF duration 5 ± 3 months, none significant), 3/3 waveforms were used. After cardioversion, each patient was asked to quantify his pain on a scale from 1 to 10 (1 = no pain, 10 = intolerable).

Results: All pts were successfully cardioverted. Pts from the 6/6 waveform group were converted to sinus rhythm with lower voltage and lower pain.

Waveform [ms]	6/6	3/3	p-value
Pain Score (1–10)	1.3 ± 1.1	4.2 ± 2.0	p < 0.05
Midazolam [mg]	2.3 ± 1.8	5.6 ± 2.3	p < 0.05
Cardioversion Energy [J]	6.8 ± 2.8	6.3 ± 1.5	n.s.
Voltage [V]	251/114	308/170	p < 0.05

Conclusions: The waveform used in internal cardioversion seems to have a major impact on the patients' perception of pain. The results imply that energy determines the success of a shock, but voltage determines the pain perceived by the patient. The use of waveforms that deliver greater energy at lower peak voltages offers the possibility of IC with less sedation and greater patient tolerance.

936-106 Impaired Quality of Life in Patients With Atrial Fibrillation is not Related to AF Frequency or Duration

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The impact of atrial fibrillation (AF) on quality of life (QOL) is unclear. The symptom burden and degree of life disruption is highly variable, and may not be related to objective indices such as frequency or duration of AF episodes. Thirty-five AF patients completed the Medical Outcomes Study (SF-36), University of Toronto Arrhythmia Scale (U of T), and the Barsky Somatization Scale. The frequency, duration, and perceived severity of AF episodes were also recorded.

Results: 80% of patients were male and median age was 64 years. AF was paroxysmal in 45%; 29% and 26% had permanent and persistent AF, respectively. Median episode frequency was 2.5/week with an average severity rating of 4.9 ± 1.3 on a 10 point visual analog scale.

SF-36 Scale	AF	CAD	Normals
Physical Function	65 ± 29*	70 ± 26	84 ± 23
Role-Physical	39 ± 41*†	51 ± 40	81 ± 34
Social Function	74 ± 19*†	85 ± 21	83 ± 23
Vitality	47 ± 25*†	58 ± 19	61 ± 21
General Health	55 ± 23*	59 ± 19	72 ± 20

*p < 0.01, AF vs. Normals; †p < 0.01, AF vs. CAD (recent MI)

Tendency to somatize was correlated with lower general health scores on the SF-36 (by multiple regression, $R^2 = 0.29$, $p < 0.01$). However, frequency and duration of episodes were not correlated with any QOL domains ($R^2 = 0.04–0.10$).

Conclusions: QOL is as much or more impaired in patients with AF than CAD patients; perception of QOL is unrelated to objective measures of disease burden usually employed to assess treatment efficacy in AF.

936-107 Reappraisal of Optimal Initial Energy for External Cardioversion of Atrial Flutter

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Direct-current cardioversion is commonly used to restore sinus rhythm in patients with atrial flutter. Currently, initial energies of 25 to 50 J are recommended. However, the optimal energy settings have not been evaluated in a large series of contemporary patients. We compared the efficacy of 50 J vs. 100 J in 296 consecutive patients who underwent their first attempted external cardioversion for typical atrial flutter. Initial energy was chosen based on attending physician preference. One hundred thirty four patients (45%) received 50 J, and 162 (55%) 100 J. Patients in both groups did not differ in age, gender, weight, duration of the arrhythmia, postoperative status, presence and type of structural heart disease, or use of antiarrhythmic drugs (including amiodarone). Patients in the 100 J group had higher incidence of first shock conversion (83% vs. 67%; p = 0.002), fewer number of total shocks (1.2 ± 0.5 vs. 1.4 ± 0.7; p = 0.005), and a trend towards shorter procedural room time (39 minutes vs. 54 minutes; p = 0.06). There were no differences in overall restoration of sinus rhythm (98% vs. 97%), total energy delivered (152 ± 148 J vs. 129 ± 145 J), or methohexital dose (0.68 ± 0.3 vs. 0.69 ± 0.3 mg/kg). No acute complications occurred. *Conclusions:* an initial energy of 100 J appears to be a more efficient choice for restoration of sinus rhythm in patients with atrial flutter. It is associated with less intensive resource consumption without increases in total energy delivery, anesthetic requirements or complications.

936-108 Plasma Nitric Oxide Levels are Decreased in Patients with Atrial Fibrillation

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Abnormalities of hemostatic conditions are found in patients with atrial fibrillation (Af), which may in part account for increased risk of thromboembolism. Since nitric oxide (NO) exerts antithrombotic effects and the production of NO is decreased under "turbulent" blood flow condition characteristic of Af, we hypothesized that NO production is decreased in patients with Af, which may contribute to the abnormalities of hemostatic conditions. To test this hypothesis, we measured plasma NO levels and hemostatic factors in 36 patients with nonvalvular Af (age: 63 ± 2, male/female: 26/10) and 36 age, sex-matched subjects with sinus rhythm (SR). There were not significant differences in the prevalence of risk factors for stroke, the left atrial size, and fractional shortening of left ventricle between the two groups. Plasma NO (nitrite + nitrate)